

record. By the present remarks, Applicants submit that the rejections have been overcome, and respectfully request reconsideration of the outstanding Office Action and allowance of the present application.

***Traversal of Rejection Under 35 U.S.C. § 103(a)***

Applicants traverse the rejection of claims 1 - 54 under 35 U.S.C. § 103(a) as being unpatentable over SCHIEL (U.S. Patent No. 6,004,429) or EDWARDS et al. (U.S. Patent No. 6,287,426) [hereinafter "EDWARDS"] in view of HAY et al. (International Publication No. WO 00/12817) [hereinafter "HAY"]. The Examiner asserts that SCHIEL and EDWARDS show all of the recited features, but that, to the extent that a wire with zonally varied permeability is not shown, it would have been obvious to modify these systems to utilize such a known wire such as disclosed in HAY. Applicants traverse the Examiner's assertions.

Applicants submit that, as HAY cannot be applied against the pending claims under 35 U.S.C. § 103(a), for the reasons set forth below, the instant rejection is improper and must be withdrawn.

Initially, Applicants submit herewith a verified translation of the priority document, thereby perfecting Applicant's claim of priority of German Patent Application No. 100 03 686.4 filed January 28, 2000. Accordingly, Applicants submit that, as the priority date of the instant application predates the March 9, 2000 publication date of HAY, this document is not

prior art under 35 U.S.C. § 102 (a) or (b), and, therefore, cannot be applied against the pending claims under 35 U.S.C. § 103(a).

Moreover, Applicants note that, as the International Application of HAY did not designate the United States, this document cannot be prior art under 35 U.S.C. § 102(e)(1). Therefore, for this additional reason, HAY cannot be applied against the claims in a rejection under 35 U.S.C. § 103(a).

Further, Applicants note that, under 35 U.S.C. section 103(c), subject matter developed by another person, which qualifies as prior art only under one of 35 U.S.C. 102(e), (f), or (g) shall not preclude patentability under 35 U.S.C. § 103 where the subject matter and the claimed invention (filed in the U.S. Patent and Trademark Office after November 29, 1999) were, at the time the invention was made, commonly owned. In other words, if, at the time the instant invention was made, the instant invention and HAY were commonly owned, HAY cannot be used as a reference against the claimed invention in an obviousness rejection under 35 U.S.C. § 103.

As the instant application was filed January 26, 2001, i.e., after the effective date of the 35 U.S.C. § 103(c), HAY cannot be applied against the pending claims under 35 U.S.C. § 103(a) if it and the instant invention were commonly owned at the time the instant application was filed in the U.S. Patent and Trademark Office. For the Examiner's convenience, Applicants note that Voith Paper Patent GmbH is the assignee of record in the

instant application and that HAY, as identified on the International Publication, was assigned to Scapa Group.

However, as evidenced by the enclosed document in Appendix A, Voith Fabrics became a division of the Voith Group in 1999 following a merger of Appleton Mills and Scapa, which predates the invention date of the instant invention. Thus, subsequent to the merger, HAY was owned by Voith Fabric. Further, as the enclosed document (Appendix B) shows that the Voith Group includes both Voith Fabrics and Voith Paper, Applicants submit that, at the time of the instant invention, i.e., the January 28, 2000 priority date, the instant invention and HAY were commonly owned.

Accordingly, Applicants submit that, as the instant invention and the patented invention were commonly owned at the time of the present invention, HAY cannot be used as a reference against the pending claims under 35 U.S.C. § 103(a).

Moreover, Applicants submit that it would not have been obvious to combine the applied documents in the manner asserted by the Examiner in the instant action. Applicants' independent claim 1 recites, *inter alia*, a forming area including at least one rotating continuous *dewatering wire with a plurality of zones having different wire permeabilities*, and *at least one shoe press*. Independent claim 22 recites, *inter alia*, dewatering the tissue web with at least the at least one continuous *dewatering wire with said plurality of zones having different wire permeabilities*, and *pressing* the tissue web in the at least one shoe

press. Applicants' independent claim 39 recites, *inter alia*, a forming element, at least two rotating continuous dewatering wires, in which *at least one of said two rotating continuous dewatering wires has a plurality of zones with different wire permeabilities*, arranged over said forming element, as an outer wire not in contact with said forming element and as an inner wire, and *at least one shoe press arranged downstream, relative to a wire travel direction, from said forming element*. Applicants submit that no proper combination of SCHIEL or EDWARDS with HAY teaches or suggests at least the above-noted features.

Applicants note that, while both SCHIEL and EDWARDS disclose machines for forming tissue or creped webs, neither document provides any teaching or suggestion of a forming area that includes a continuous dewatering wire with a plurality of zones having different wire permeabilities. In fact, the applied art fails to provide any teaching or suggestion of the specific structure of the wire, and certainly no teaching or suggestion as to how the specific structure affects the physical characteristics of the resulting web.

Further, Applicants note that the instant invention provides an apparatus and process to improve physical characteristics of the web, e.g., water absorption capacity, water absorption rate, water retention capacity, specific volume, *see* Specification, paragraph [0004]. According to the instant invention, the above-noted physical properties of the web are improved by a forming region having at least one circulating, continuous dewatering wire comprising at least two zones having different wire permeabilities and a press shoe located

downstream of the forming region.

In contrast to the instant invention, Applicants note that neither SCHIEL nor EDWARDS provide any teaching or suggestion that physical characteristics of the resulting web can be improved by the structure of the dewatering wire. Because the art of record fails to provide any teaching or suggestion of utilizing a dewatering wire having a plurality of zones having different wire permeabilities, Applicants submit that the applied documents fail to teach or suggest the combination of features recited in at least independent claims 1, 22, and 39, and that the rejection under 35 U.S.C. § 103(a) is improper and should be withdrawn.

Thus, absent some other teaching in the art, Applicants submit that it would not have been obvious to one ordinarily skilled in the art to modify the structural features of the dewatering wires of SCHIEL or EDWARDS in any manner that would render in instant invention unpatentable.

In this regard, the Examiner has asserted that it would have been obvious to utilize the wire disclosed in HAY in place of the dewatering wire of SCHIEL or EDWARDS. Applicants reiterate that, by perfecting their claim of priority, HAY is not prior art against the instant application under 35 U.S.C. § 102(a), (b) or (e), and that, according to 35 U.S.C. § 103(c), HAY cannot be applied against the pending claims in an obviousness-type rejection. However, even assuming, *arguendo*, that common ownership is disputed by the Examiner, Applicants submit that the asserted combination is merely the product of

impermissible hindsight after reviewing Applicants' disclosure, and that the applied art fails to provide any motivation or rationale for combining the documents in the manner asserted by the Examiner.

In particular, Applicants submit that, while HAY expressly discloses various belts or wires formed with various weave patterns, there is no teaching or suggestion that these various weave patterns form a plurality of zones having different wire permeabilities, as recited in at least Applicants' independent claims. In fact, Applicants submit that the disclosure in this document is limited only to the weave *pattern*, and there is no suggestion in the document that this pattern would result in a plurality of zones having different wire permeabilities. Further, Applicants note that HAY fails to provide any teaching or suggestion of utilizing the dewatering wire in combination with a press shoe, as recited in at least Applicants' independent claims.

Moreover, Applicants note that HAY discloses that the belt is utilized to form a *patterned web* (i.e., the visual appearance of the web), and that there is no teaching or suggestion in the applied document that the belt affects the *physical characteristics* of the web. In particular, HAY does not suggest another use or advantage of the patterned wire design.

Because neither SCHIEL nor EDWARDS provide any teaching or suggestion for forming a patterned web and neither document suggest any intention of producing a patterned

web, Applicants submit that the art of record fails to provide any teaching or suggestion as to why one ordinarily skilled in the art would replace the dewatering wire with a wire such as HAY, which intentionally creates a patterned web. Accordingly, Applicants submit that the art of record fails to provide the requisite motivation or rationale for combining the documents in the manner asserted by the Examiner.

Applicants further note that, as the art fails to provide any teaching or suggestion that the identified zones of HAY have different wire permeabilities, the art of record fails to provide any teaching or suggestion for combining the art of record in any manner that would render the instant invention unpatentable. In fact, Applicants submit that basis for Examiner's assertions that HAY provides different wire permeabilities is based upon the disclosure of the inventors in the instant application, and that to use this teaching against the inventors would be an impermissible use of hindsight.

Further, Applicants submit that claims 2 - 21, 23 - 38, and 40 - 48 are allowable at least for the reason that these claims depend from allowable base claims and because these claims recite additional features that further define the present invention. In particular, Applicants submit that no proper combination of SCHIEL or EDWARDS in view of HAY renders unpatentable, *inter alia*, a former including a forming element and two rotating continuous dewatering belts, said two rotating continuous dewatering belts being arranged to converge to form a stock entry gap and being conducted over said forming element as an

outer belt, which does not contact said forming element, and as an inner belt, wherein at least one of said outer and said inner belts comprises said at least one rotating continuous dewatering wire with said plurality of zones having different wire permeabilities, as recited in claim 2; said forming element comprises a forming roll, as recited in claim 3; said shoe press comprises a separate unit arranged behind, in the belt travel direction, a unit including said forming element and said two dewatering belts, as recited in claim 4; the tissue web is carried by one of the two dewatering belts subsequent to said forming element, and the tissue web and said one dewatering belt is guided through said shoe press, as recited in claim 5; said former comprises a twin wire former, as recited in claim 6; said former comprises a crescent former, and wherein said outer belt comprises said at least one dewatering wire with said plurality of zones having different wire permeabilities and said inner belt comprises a felt belt, as recited in claim 7; said shoe press comprises a shoe press unit and an opposing element, as recited in claim 8; said opposing element comprises a drying cylinder, as recited in claim 9; said opposing element comprises a Yankee cylinder, as recited in claim 10; said shoe press has a press nip length, viewed in a belt travel direction, less than or equal to about 60 mm and has a pressure profile over said press nip length with a maximum pressing pressure greater than or equal to about 3.3 MPa, as recited in claim 11; said shoe press has a press nip length, viewed in a belt travel direction, greater than about 80 mm and has a pressure profile over said press nip length with a maximum pressing pressure less than or



equal to about 2 MPa, as recited in claim 12; said press nip length is less than about 200 mm, as recited in claim 13; said press nip length is a maximum of about 150 mm, as recited in claim 14; a drying zone in which the tissue web is acted upon at least partially by pressurized displacement gas, as recited in claim 15; said at least one dewatering wire with said plurality of zones having different wire permeabilities is located in an initial dewatering area, as recited in claim 16; said at least one dewatering wire with said plurality of zones having different wire permeabilities comprises a fabric formed by filling and warp yarns, as recited in claim 17; said at least one dewatering wire with said plurality of zones having different wire permeabilities comprises a fabric formed only by filling and warp yarns, as recited in claim 18; zones of different wire permeability of said at least one dewatering wire are produced by at least one of weaving yarns of different diameter and different weave pattern, as recited in claim 19; a conditioning device assigned to said at least one dewatering wire with said plurality of zones having different wire permeabilities, as recited in claim 20; said conditioning device comprises a wire cleaning device, as recited in claim 21; the tissue machine further including a former with a forming element and two rotating continuous dewatering belts arranged to converge to form a stock entry gap and then guided over the forming element as an outer belt, which does not contact the forming element, and as an inner belt, such that at least one of said outer and said inner belts comprises said at least one rotating continuous dewatering wire with the plurality of zones having different wire

permeabilities, and said process further comprises forming the tissue web between the inner and outer belts, and guiding the inner and outer belts and tissue web over the forming element, as recited in claim 23; the forming element comprises a forming roll, and said process further comprises guiding the inner and outer belts and the tissue web over the forming roll, as recited in claim 24; the shoe press is arranged as a separate from, and behind in a belt travel direction, a unit including the forming element and the two dewatering belts, as recited in claim 25; carrying, after the forming element and on one of the two dewatering belts, the tissue web, and guiding the tissue web and the one dewatering belt through the shoe press, as recited in claim 26; said former comprises a twin wire former, as recited in claim 27; said former comprises a crescent former, and the outer belt comprises the at least one dewatering wire with the plurality of zones having different wire permeabilities, and the inner belt comprises a felt belt, as recited in claim 28; dewatering at a machine speed greater than about 1300 m/min, as recited in claim 29; dewatering at a machine speed greater than about 1500 m/min, as recited in claim 30; dewatering at a machine speed greater than about 1800 m/min, as recited in claim 31; dewatering the tissue web, in an initial dewatering area, with at least the at least one dewatering wire with the plurality of zones having different wire permeabilities, as recited in claim 32; the at least one dewatering wire with the plurality of zones having different wire permeabilities comprises a fabric formed by filling and warp yarns, as recited in claim 33; the at least one dewatering wire with the plurality of zones

having different wire permeabilities comprises a fabric formed only by filling and warp yarns, as recited in claim 34; the at least one dewatering wire with the plurality of zones having different wire permeabilities comprises zones of different wire permeability formed by at least one of weaving yarns of different diameter and different weave pattern, as recited in claim 35; the at least one dewatering wire with the plurality of zones having different wire permeabilities is located in an area in which solids content of the tissue web is less than about 20%, as recited in claim 36; the at least one dewatering wire with the plurality of zones having different wire permeabilities is located in an area in which solids content of the tissue web is less than about 12%, as recited in claim 37; the at least one dewatering wire with the plurality of zones having different wire permeabilities is located in an initial sheet forming area having a solids content of less than about 6%, as recited in claim 38; said forming element comprises a forming roll, as recited in claim 40; the at least one dewatering wire with said plurality of zones with different wire permeabilities comprises a plurality of zones in which each zone has a maximum extension of less than about 5 mm, as recited in claim 41; said maximum extension of each said zone is less than about 3 mm, as recited in claim 42; said former comprises a crescent former, and wherein said outer belt comprises said at least one dewatering wire with said plurality of zones with different wire permeabilities and said inner belt comprises a felt belt, as recited in claim 43; a suction zone located within a loop of said inner belt, and a conditioning device associated with said outer belt, as recited

in claim 44; said suction zone is located in said forming roll, as recited in claim 45; an apparatus to one of control or regulate said suction zone, as recited in claim 46; said suction zone comprises at least two suction zones separated in a belt run direction, as recited in claim 47; an apparatus to one of control or regulate said at least two suction zones, as recited in claim 48; said zones of different wire permeabilities are formed by warp and weft threads, as recited in claims 49, 51, and 53; and said zones of different wire permeabilities are structured to provide at least two different dewatering speeds, as recited in claims 50, 52, and 54.

Applicants request that the Examiner reconsider and withdraw the rejections of claims 1 - 54 under 35 U.S.C. § 103(a) and indicate that these claims are allowable.

***Application is Allowable***

Thus, Applicants respectfully submit that each and every pending claim of the present invention meets the requirements for patentability under 35 U.S.C. §§ 102 and 103, and respectfully request the Examiner to indicate allowance of each and every pending claim of the present invention.

***Authorization to Charge Deposit Account***

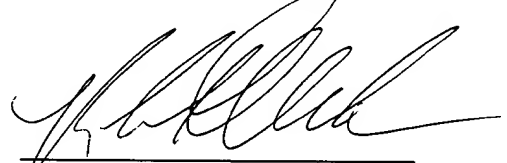
The Commissioner is authorized to charge to Deposit Account No. 19 - 0089 any necessary fees, including any extensions of time fees required to place the application in condition for allowance by Examiner's Amendment, in order to maintain pendency of this application.

**CONCLUSION**

In view of the foregoing, it is submitted that none of the references of record, either taken alone or in any proper combination thereof, anticipate or render obvious the Applicants' invention, as recited in each of claims 1 - 54. The applied references of record have been discussed and distinguished, while significant claimed features of the present invention have been pointed out.

Accordingly, reconsideration of the outstanding Office Action and allowance of the present application and all the claims therein are respectfully requested and now believed to be appropriate.

Respectfully submitted,  
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enclosures: Appendix A (Scapa merged into Voith Fiber)  
Appendix B (Voith Fiber and Voith Paper part of Voith Group)

## APPENDIX A



[Home](#)
[Voith Group](#)

## History

- 1825 - 1867 Locksmith Voith
- 1867 - 1913 Growth
- 1913 - 1945 Flowering Time
- 1945 - 1973 Reconstruction
- 1973 - 1986 Expansion/Global Player
- 1986 - 2000 International Group
- Today

## History

In October of 1999, Voith Fabrics became a division of the Voith Group of Companies following the merger of Appleton Mills and Scapa Paper Machine Clothing. Appleton Mills had been serving the paper industry for over a century as a leading manufacturer of press fabrics and in 1983 became the only clothing supplier directly affiliated with a major machine builder. The former Scapa Paper Machine Clothing companies had been in business for over 150 years supplying a full range of forming, press and dryer fabrics with pioneering work in composite materials and unique fabric designs.

Today, Voith Fabrics continues the unique relationship with Voith Paper as part of a total process solution to the paper industry. Voith Fabrics is a global leader in the development, design, manufacture and servicing of paper machine clothing. With manufacturing facilities in 9 countries, a wholly owned monofilament research and manufacturing plant and a global sales and service team, Voith Fabrics offers the benefits of the a strong history and the promise of a bright future for the papermaking community.

In 1999, the invention of the paper machine celebrated its 200th anniversary. For 175 years, the name Voith has been associated with its continued development. In 1824, Johann Caspar Voith and his son, Johann Matthäus, completed the

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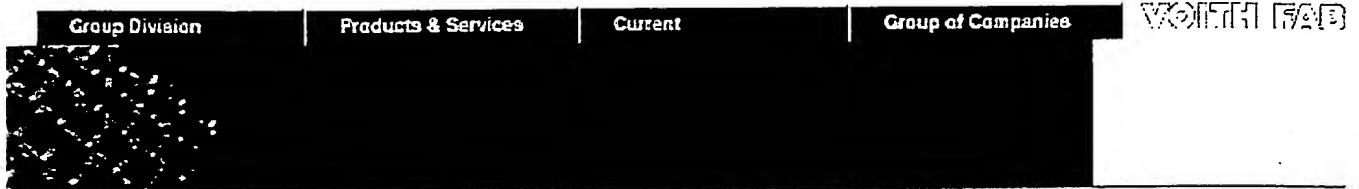
facility and the foundation stone by Voith for the industrial production of paper.

Since then, giant strides have been made in the development of paper technology. Whether one considers fundamental inventions or improvements in processes and efficiency, no name is so intensively and continuously linked with the progress of paper technology than the name Voith.

Water recovery, visionary solutions for saving resources, e. g. in recycling recovered paper and saving energy, and 5,000 patents in paper technology applied for, constitute examples that demonstrate Voith's leadership.

You can find more information about Voith Fabrics in the History of the Voith Group of Companies.

## APPENDIX B

[Home](#)[About Voith](#)[Our Job](#)[Our Values](#)[Organization Structure](#)

## Voith. Five Group Divisions - One Group

With over 24,000 employees and sales of about 3 billion EUR, Voith is one of the world's leading companies in paper technology, fabrics, power transmission, fluid machinery, and industrial services. For more than 130 years technical pioneering feats have been inseparably related with the name Voith.

Five Group Divisions belong to the Voith Group of Companies: Voith Paper, Voith Fabrics, Voith Turbo, Voith Siemens Hydro Power Generation and Voith Industrial Services. The Voith AG decides and takes the responsibility for the general business strategies of the Voith Group as an operational management holding.

Five Group Divisions - one Group. Also Voith Fabrics belongs to this strong group and is part of a bigger entirety. And that works out well - for the profit of customers, employees and the other Group Divisions. Because also for Voith applies: The entirety is more than the sum of its parts.

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